Original in Branch file

SUPERFUND PRELIMINARY CLOSE OUT REPORT

FLORENCE LAND RECONTOURING LANDFILL

BURLINGTON COUNTY, NEW JERSEY

September 1998

Prepared By

U.S. Environmental Protection Agency, Region II
Central New Jersey Remediation Section
New York, New York 10007

SUPERFUND PRELIMINARY CLOSE OUT REPORT
FLORENCE LAND RECONTOURING LANDFILL
BURLINGTON COUNTY, NEW JERSEY

TABLE OF CONTENTS

Superfund Preliminary Close Out Report
Florence Land Recontouring Landfill
Burlington County, New Jersey

I. INTRODUCTION

This Preliminary Close Out Report documents that the U.S. Environmental Protection Agency (EPA) has determined that all construction activities at the Florence Land Recontouring Landfill site (the Site) have been completed in accordance with *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-09). One operable unit and one Record of Decision (ROD) exist for the Site. The ROD issued on June 27, 1986, selected: construction of a synthetic landfill cap, circumferential slurry wall, upgradient ground water interceptor system, partial fence and stormwater management system; leachate treatment and disposal; gas collection and treatment; removal and disposal of lagoon liquids and sediments; and, supplemental sampling.

The New Jersey Department of Environmental Protection (NJDEP) conducted a final inspection for the Site on February 17, 1994. NJDEP issued a certificate of final completion for the construction on August 19, 1994. EPA and the State have determined that the contractors have constructed the remedy in accordance with the remedial design (RD) plans and specifications and the remedy as selected in the ROD.

II. SUMMARY OF SITE CONDITIONS

Background

The Florence Land Recontouring (FLR) Landfill Site is located in Florence, Mansfield and Springfield Townships, Burlington County, New Jersey. The property boundary of the FLR Landfill encompasses approximately 60 acres. Out of a total of 60 acres, the area which contains the actual landfilled wastes is 29 acres. Land use in the vicinity of the Ste is residential and agricultural. The Site is bordered by farmland and the Assiscunk Creek, which is used for both recreational purposes and irrigation.

The FLR Landfill lies above the Raritan-Magothy Aquifer, a major source of drinking water for the area. The Raritan-Magothy Formation comprises about 150 feet of interbedded sands, silts and clays. Separating the landfill from this aquifer is 50 to 70 feet of Merchantville Clay. Overlying the Merchantville are Pleistocene deposits varying from zero to 25 feet in thickness, which consist of sand, silt and clay. The surficial Pleistocene Aquifer is used as a water supply, but to a lesser extent than the Raritan-Magothy. Flow in both the Pleistocene and Raritan-Magothy is in the south-southeast direction toward the Assiscunk Creek. Based on existing hydraulic gradients, leachate from the landfill has the potential to flow out of the fill into the

adjacent surficial Pleistocene aquifer. Since ground water from the Pleistocene Aquifer discharges into the Assiscunk Creek, the Creek acts as a natural hydraulic barrier to further contain contaminant transport in the ground water beyond the creek.

The FLR Landfill operated as a solid waste disposal facility from November 1973 until November 1981. Florence Land Development, a partnership, owned the Site from April 1974 to May 1978. Subsequently, Florence Land Development, Inc. purchased the Site and maintained ownership. For all but one year (1977), the Site was operated by Florence Land Recontouring, Inc. In 1977, the Site was operated by Jersey Environmental Management Services. During its operation, the landfill was permitted to accept sanitary and industrial (non-chemical) waste, including septage and sewage sludge.

In 1975, an investigation by NJDEP disclosed chemical waste disposal at the landfill. In January 1979, a Consent Order was issued by NJDEP to alleviate and control further contamination due to a history of environmental concerns, including observed leachate seeps, potential groundwater contamination and emissions to the atmosphere. During this period, compliance with the Consent Order was sporadic. Subsequent enforcement action was necessitated by the lack of adherence to the terms of the Consent Order.

In July 1981, Florence Land Recontouring, Inc. submitted a final closure plan and operations terminated in November 1981. In 1982, the waste fill area was capped with on-site clay-like material, reportedly of the Merchantville Formation and revegetated. A leachate collection system was installed and the resulting leachate was placed into two lagoons constructed on another section of the property, and then disposed of at an off-site wastewater treatment plant. The leachate lagoons were surrounded by a five foot high fence. Carbon adsorption filters were placed on top of the six leachate collection system manholes to collect volatile organic compounds (VOCs) and control odors.

On December 24, 1980, the Board of Chosen Freeholders of the County of Burlington (the County) adopted a resolution which identified a 600 acre-parcel in the Townships of Springfield, Florence and Mansfield as the probable site for the future Burlington County Resource Recovery Facilities Complex (BCRRC). Since this complex would surround the FLR Landfill, the County attempted to determine the past and potential environmental impacts associated with the FLR Landfill Site. During 1981 and 1982, the County, with consultant assistance, completed a hydrogeologic assessment of the FLR Landfill Site. In 1984, an Environmental Impact Statement was prepared to address impacts of the BCRRC on the surrounding community.

The FLR Site was proposed for listing on the NPL in September 1983 and was added to the NPL in September 1984. During 1985 and 1986, a Remedial Investigation and Feasibility Study (RI/FS) was conducted at the FLR Landfill Site by Black and Veatch, an engineering consulting firm, under the direction of NJDEP.

Remedial Design/Remedial Construction Activities

EPA issued a comprehensive Record of Decision for the Site on June 27, 1986. The major components of the selected remedy are: (1) construction of a synthetic membrane and clay composite cap; (2) construction of a circumferential soil/bentonite slurry containment wall; (3) construction of an upgradient ground water interceptor system; (4) construction of a new stormwater management system; (5) leachate treatment and disposal at a publicly owned treatment works (POTW) or the BCRRC; (6) gas collection and treatment; (7) removal and disposal of lagoon liquids and sediments, and other surface debris; (8) construction of a partial fence with warning signs, and; (9) supplemental sampling of ground water, surface water and sediments during design.

The implementation of the design was conducted by Acres International Corp. of Buffalo, New York (Acres). The design contract was awarded on December 29, 1987. The Design Contract identified the major remedial elements for the project which included the following: construction of a synthetic membrane and clay cap over the entire landfill in accordance with EPA Resource Conservation and Recovery Act (RCRA) requirements; construction of a circumferential soil/bentonite slurry containment wall; construction of an upgradient groundwater interceptor system to reduce hydrostatic head on the slurry wall; construction of a surface water management system including extensive regrading to improve slopes and revegetation; construction of a leachate extraction and handling system; decommissioning the lagoons including removal and disposal of liquids, bottom sediments and miscellaneous surface debris; construction of a fence with warning signs, and; development and implementation of the monitoring plan.

Under the design contract, Acres conducted additional investigation work. During Fall 1988, soil borings were taken around the perimeter of the landfill to develop sufficient subsurface information for the perimeter slurry wall design. In addition, a slurry wall mix design study was done to determine the optimum soil/bentonite ratio that would achieve the desired $1x10^{-7}$ permeability. A two phase Interim Monitoring Program was conducted that involved the sampling and analysis of the groundwater, surface water, stream sediment and air. The first round of sampling was performed in Spring 1989 and the second round was performed in August 1989. In July 1988, a Stage IA study was conducted to define areas of archaeological sensitivity and to identify documented historical and archaeological resources. During May and June 1988, the Stage IB and II studies were performed and involved field investigations (auger holes and test pits). No potentially significant archaeological remains were identified in the project area.

Acres also investigated soil conditions on-site and possible sources for materials that would meet the specifications for the multi-layer cap. During the design phase, Acres developed the landfill gas collection and transfer system, the electrical and mechanical systems for both the leachate extraction system and the collection control building. The actual cost of the remedial design was $1,219,972.

The construction contract was awarded on November 12, 1991 to Tricil Environmental Response, Inc. (Tricil) of Houston, Texas. Tricil was solicited through an open and competitive procurement and performed the remedial construction for a total cost of $ 17,000,725. The Resident Engineering/Construction Oversight was provided by Acres, the remedial designer, through a Waiver of Advertising for a total cost of $2,495,280.

A general Notice to Proceed was issued by NJDEP on April 23, 1992. The construction phase of the FLR remediation was completed on August 19, 1994. At that time, an outstanding administrative issue concerning the disposal of landfill leachate remained. As explained below, this issue was not resolved until 1998, thus delaying completion of this report. The contract with Tricil included a one year period of operation and maintenance (O&M). This O&M phase was completed by Tricil on February 28, 1996. As explained below, O&M is currently being performed by various parties including NJDEP, a Potentially Responsible Party (PRP) and Burlington County.

Landfill cap construction began in April 1993 and was completed in February 1994. Preparatory work included placing subgrade material, stabilization of landfill side slopes and installation of a landfill gas venting system. The areal extent of the cap is approximately 29 acres. The synthetic membrane cap includes layers of fill material, grading layers, gas collection layers for the gas venting system, filter fabric, a clay layer, an impermeable membrane, a drainage layer, a fill layer, and a topsoil layer. During construction of the cap, areas of the Site were regraded to provide for surface water management. Following cap construction, the Site was revegetated. Slurry wall construction began in June 1992 and was completed in November 1992. The slurry wall was installed to an average depth of 25 feet.

Construction of the upgradient groundwater interceptor system was competed in June and July of 1992. Groundwater was successfully diverted around the Site to reduce leachate production. Construction of the leachate collection and treatment system began in September 1992 and was completed in March 1994. At the conclusion of construction, an administrative issue arose concerning leachate disposal. The ROD required leachate treatment and disposal at a POTW or BCRRC. At that time, the BCRRC had sufficient capacity to manage the leachate from the Site. During design, Acres evaluated the two options in the ROD. The BCRRC yielded the better cost option and the design was based on sending leachate to BCRRC. During negotiations with BCRRC to accept the waste, NJDEP became aware that the plant needed to be expanded. BCRRC requested that NJDEP share the capital costs associated with expanding the plant. In 1994, NJDEP approached EPA with a draft service agreement and a grant application to use federal funds for capital, operation and maintenance costs contained in the service agreement. EPA eventually agreed in principle to this approach but required NJDEP issue an Explanation of Significant Differences to explain the need to fund capital improvements at BCRRC. As it turns out, in 1998, as EPA was preparing to approve NJDEP's grant application, BCRRC was shut-down. As a result, NJDEP has arranged for leachate to be disposed of off-site at a POTW (the other option for leachate disposal in the 1994 ROD). Leachate is picked up an average of three times a week. However, resolution of this issued delayed preparation of this report since it was

not determined until now that no additional construction activities would be required to handle leachate disposal.

Lagoon dewatering was begun in March 1992 and completed in June 1992. Tricil dewatered the leachate lagoons and removed approximately 4,000 cubic yards of lagoon bottom sediments. The bottom sediments and other material were disposed on-site. Following dewatering and removal, the lagoons were backfilled and graded.

The site fencing was installed between February 1994 and August 1994.

III. MONITORING RESULTS

All construction for the site required by the ROD has been completed, the only remaining activities consists of the operation and maintenance of the cap and the various systems at the Site including the gas and leachate collection systems and the groundwater interceptor system. O&M for the site is being performed pursuant to the March 1994 NJDEP approved O&M plan by NJDEP, a PRP, and Burlington County.

Landfill gas is collected by Burlington County pursuant to an agreement with NJDEP. Gas which is generated at a rate of approximately 50 gallons per minute is flared by Burlington County. Leachate generation has slowed from an average of 10,000 gallons per day to an average of 30,000 gallons per week. This material is trucked off-site by a Potentially Responsible Party and taken to a POTW.

NJDEP began a five year monitoring period for the Site in September 1997. To date, one round of groundwater and surface water data has been collected. In general, levels in monitoring wells are reduced. No volatile or semi-volatile compounds were detected in surface water samples. Water level measurements and soil gas monitoring are conducted quarterly in the capped area. Methane levels have generally been low.

IV. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE/ QUALITY CONTROL

Cleanup activities at the Site were consistent with the ROD and the final design documents. A QA/QC program was used in the development of the Remedial Design and throughout the RA. The QA/QC program was in conformance with EPA and State standards. Post-construction sampling and testing results indicate to EPA and the State that the construction was properly implemented to the degree needed to assure satisfactory execution of the RA consistent with the ROD.

V. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

The RA activities that remain to be completed for the FLR Landfill Site include obtaining final RA Report approval, preparing the Final Close Out Report and deleting the site from the NPL. These

activities will be completed according to the following schedule.

Task	Estimated Completion	Responsible Organization
Operate and maintain remedy	Ongoing	NJDEP, PRPs
Groundwater, surface water and sediment monitoring	Ongoing	NJDEP
Final RA Report Approval	March 1999	NJDEP/EPA
Five-year remedy review	September 2003	NJDEP/EPA
Final Close Out Report	December 2003	EPA/NJDEP
Deletion from the NPL	June 2004	EPA/NJDEP

VI. FIVE-YEAR REVIEW

Hazardous substances remain at this site above health-based levels. It is the policy of EPA (OSWER Directives 9355.7-02,02a and 03a) to review the remedial actions selected in RODs signed prior to the enactment of the Superfund Amendments and Reauthorization Act of 1986 (SARA). Therefore, for this Site, a review will be conducted within five year of the date of this report. Consequently, a Five-year Review Report will be completed prior to September 2003.

Richard L. Caspe, Director
Emergency & Remedial Response Division

9/25/98
Date